A NEW SPECIES, *SYMPHORICARPOS GUATEMALENSIS* (CAPRIFOLIACEAE), FROM GUATEMALA WITH A KEY TO THE MEXICAN AND GUATEMALAN SPECIES

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ABSTRACT

Recent studies of Mexican and Central American *Symphoricarpos* have revealed the existence of a new species, described and illustrated below, from the Cuchumatanes Highlands of Guatemala. In addition, keys and distribution maps for the species of *Symphoricarpos* from Mexico and Guatemala are provided.

RESUMEN

Recientes estudios de los *Symphoricarpos* mexicanos y centroamericanos han revelado la existencia de una nueva especie, que se describe e ilustra a continuación, procedente de los Cuchumatanes de Guatemala. Además, se ofrecen claves y mapas de distribución de las especies de *Symphoricarpos* de México y Guatemala.

KEY WORDS: *Symphoricarpos*, Caprifoliaceae, Guatemala, Mexico.

Symphoricarpos guatemalensis J.K. Williams, sp. nov. (Fig. 1)

Symphoricarpi microphyllo HBK. similis sed differt fauce corollarum glabra et floribus ac foliis dimidia parte brevioribus.

Erect shrub, 2 m tall, much-branched, young twigs strigose. Leaves oval with rounded apices, tapering toward base, 3–6 mm long, 2–3 mm wide, dark green above, margins entire, glabrous to slightly villous, coriaceous; petioles up to 1 mm long. Flowers solitary or in pairs; pedicels up to 0.5 mm long, with two apical bracteoles 2–3 mm wide; calyx glabrous, 1–2 mm long, irregularly 5-toothed; corollas white, narrowly campanulate, actinomorphic, papillate towards base within, 4–6 mm long, tubes 3–5 mm, lobes 1–2 mm, erect; stamens 5, epipetalous, barely exserted, anthers 1.0–1.5 mm long, ca. half the length of filaments; style glabrous, 3–4 mm long, stigma capitate. Fruit a globose berry, 6–7 (10) mm long, white, and tipped with persistent calyx.

Distribution and Ecology: Limestone ridges of the Sierra de los Cuchumatanes in Guatemala (Fig. 2), 3000–3500 m; flowering July to September.

TYPE: GUATEMALA. HUEHUETENANGO: 3 mi SW of San Mateo, Ixtatan, 5 Aug 1965, *D.E. Breedlove 11544* (HOLOTYPE: TEX!; ISOTYPE: F!, MO).

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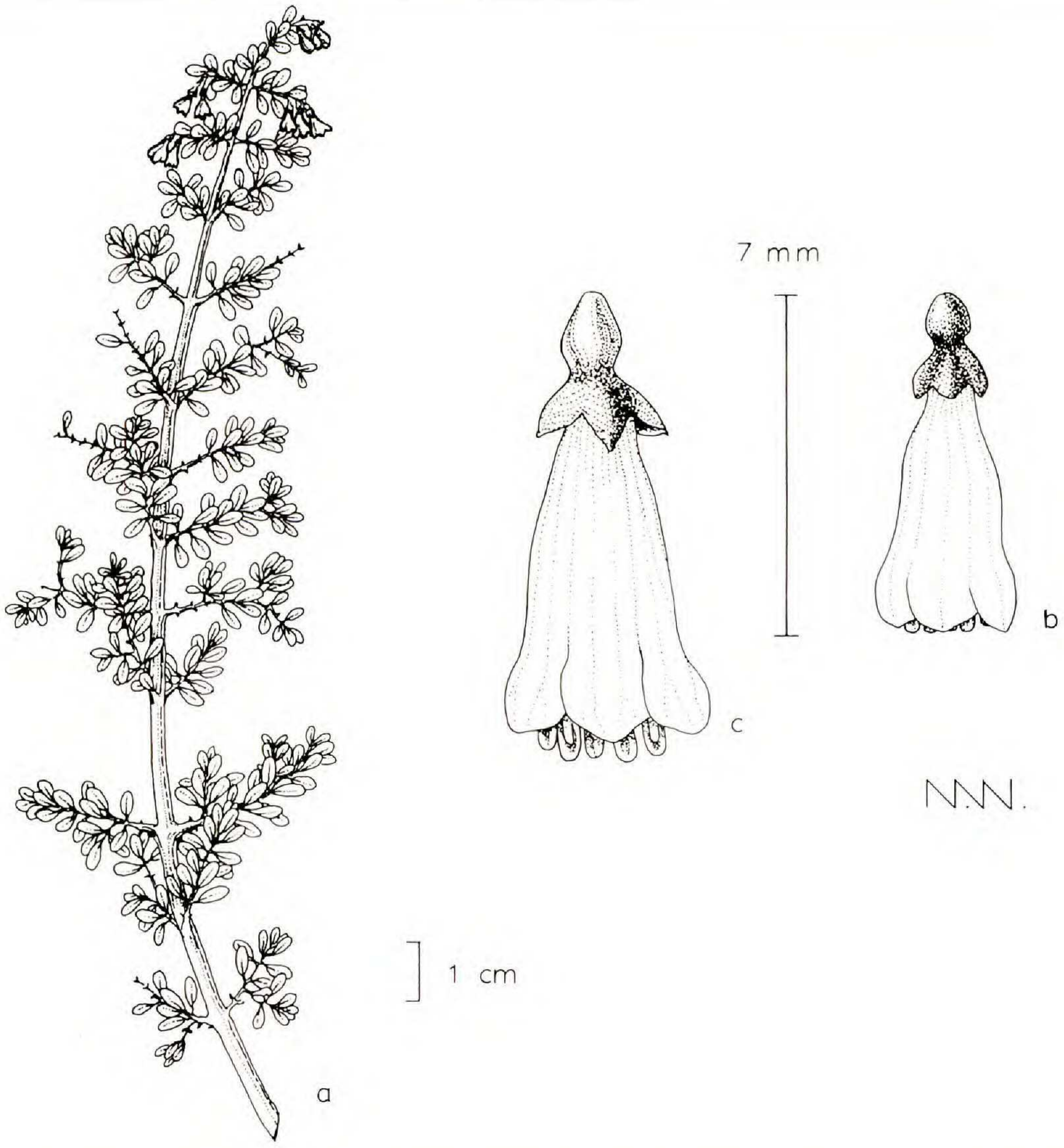

FIG. 1. A–B. *Symphoricarpos guatemalensis*. A. Habit. B. Flower. (*Breedlove 11544*). C. *Symphoricarpos microphyllus* flower.

Additional specimens examined: GUATEMALA. **Huehuetenango:** Sierra de los Cuchumatanes, on and below road from Huehuetenango, & 4 km SW of San Juan Ixcoy, E of Captzin, 15° 35'N 91° 28'W, 11 Jan 1976, *Illtis G-271* (F); between Paquix and San Juan Ixcoy, 8 Jan 1974, *Molina 30022* (F, MO); between Paquix and Llanos San Miguel, road to San Juan Ixcoy, 17 Nov 1967, *Molina 21248* (F); dry slopes of El Mirador, 12–23 Jan 1966, *Molina 16505* (F); along road to San Pedro Soloma, 3 mi SW of San Mateo Ixtatan, 5 Aug 1965, *Breedlove 11544* (F); limestone ridge near Chemal, Sierra de los Cuchumatanes, 29 Nov 1962, *L.O. Williams 21979* (F); just below Calveras, 29 Nov 1962, *L.O. Williams 22389* (F); Sierra de los Cuchumatanes, at KM 311 on Ruta Nacional 9N (between Paquix and Chemal), small limestone ridge with *Juniperus standleyi*, 2 Aug 1959, *Beaman 2989* (TEX); near Tunima, Sierra de los Cuchumatanes, 6–7 Jul 1942, *Steyermark 48304* (F); along road in region of Chemal, 31 Dec 1940, *Standley 81624* (F); rocky ridges beneath pines, Sierra Cuchumatanes, 15 Sep 1934, *Skutch 1253* (F).

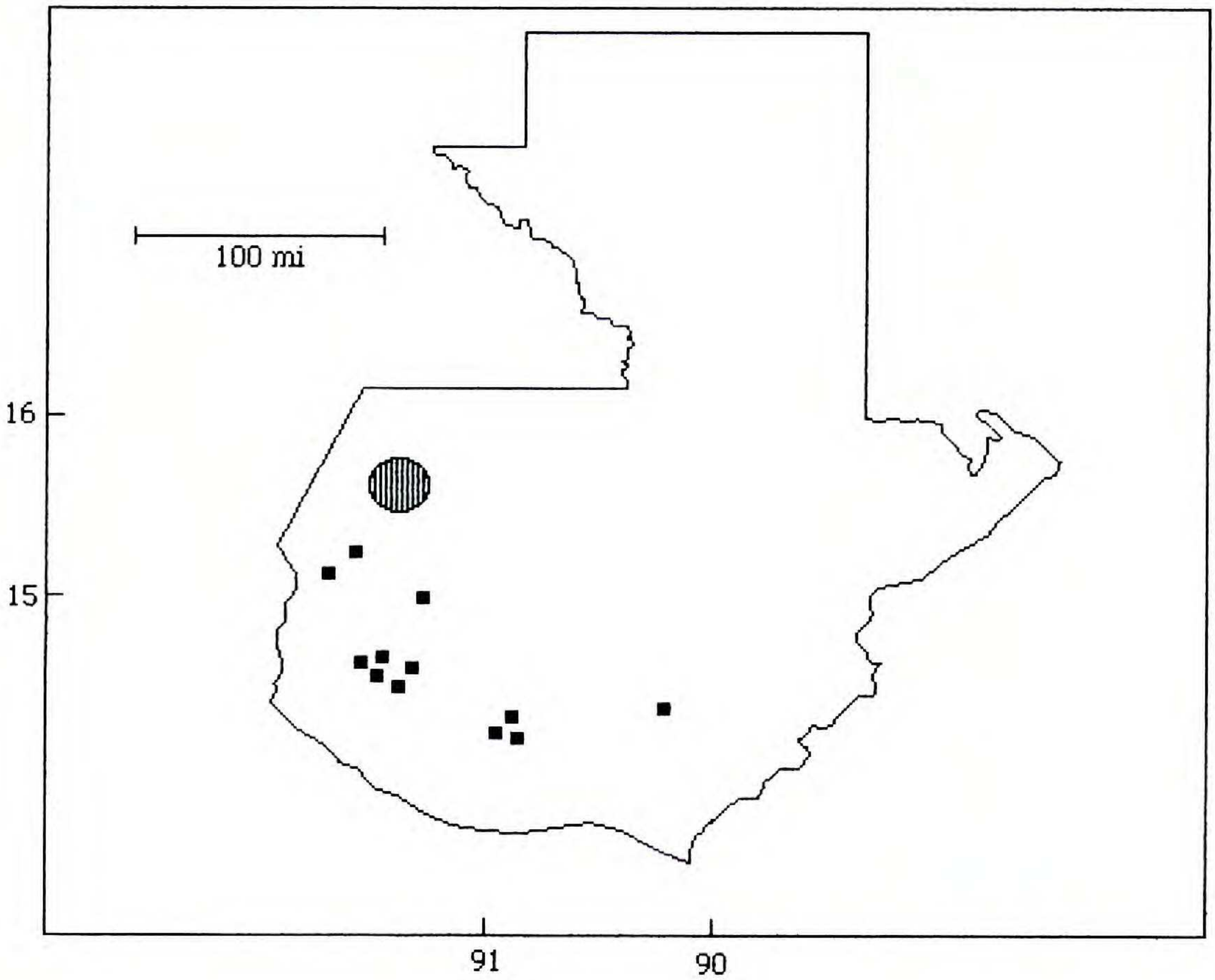

FIG. 2. Distribution of *S. guatemalensis* (hatched area) and *S. microphyllus* (squares) in Guatemala.

This narrow endemic of the Sierra de los Cuchumatanes is a member of subgenus *Anisanthus* G.N. Jones (Jones 1940), as evidenced by the corolla lobes shorter than the corolla tube and its included style. *Symphoricarpos guatemalensis* is most similar to *S. microphyllus* but differs in its glabrous (vs. villous) corolla throat, dark brownish-green leaves (vs. light green), and leaves and flowers of half the dimension. The leaves of *S. guatemalensis* are 3–6 mm long and 2–3 mm wide, compared to those of *S. microphyllus* which are 10–25 mm long and 7–15 mm wide (Fig. 3). In addition, the corolla length of *S. guatemalensis* is 4–6 mm, compared to 9–10 mm in *S. microphyllus* (Fig. 1).

In his monograph, Jones (1940) reported that species of *Symphoricarpos*, other than *S. microphyllus*, are rarely found in Mexico and further south. Accumulating collections from Mexico, however, have shown that the genus is more prevalent there than once suspected. In order to place the new species in a broader perspective and to provide a preliminary taxonomic evaluation of the Mexican and Central America species, I have constructed a key to the species of *Symphoricarpos* in this area based on specimens housed

at BRIT, F, LL, and TEX. Characters used to delineate taxa have been essentially adopted from Jones (1940) and Gray (1873).

Symphoricarpos is divided into two subgenera: subg. *Symphoricarpos*, characterized by an exserted style and corolla lobes longer than the tube, and subg. *Anisanthus*, characterized by an included style and corolla lobes shorter than the tube. There is only one member of subg. *Symphoricarpos*, *S. orbiculatus*, native to Mexico. All other species in Mexico and Central America belong to subg. *Anisanthus*.

KEY TO THE MEXICAN AND GUATEMALAN SPECIES OF *SYMPHORICARPOS*

1. Corolla lobes equal to or longer than tube; fruits red ..... 1. *S. orbiculatus*
1. Corolla lobes shorter than tube; fruits white 2
   2. Anthers sessile, style pilose or glabrous, 1 basal nectary ..... 2. *S. longiflorus*
   2. Anthers with distinct filaments, style always glabrous, 5 basal nectaries 3
      3. Leaves 4–6 mm long, 2–3 mm wide; corolla 4–6 mm long, glabrous within ..... 3. *S. guatemalensis*
      3. Leaves 6–25 mm long, 3–18 mm wide; corolla 6–10 mm long, villous within 4
         4. Shrubs erect, 2–3 m tall; mature leaves of older branches entire ... 4. *S. microphyllus*
         4. Shrubs trailing, branches arching, 1–1.5 m tall; mature leaves of older branches lobed to crenate 5
            5. Leaves of flowering and non-flowering branches mostly crenate with mucronate apices ..... 5. *S. palmeri*
            5. Leaves of flowering branches mostly entire with rounded to acute apices, leaves of non-flowering branches lobed with rounded to mucronate apices ..... 6. *S. parishii*

AN OVERVIEW OF THE MEXICAN AND CENTRAL AMERICAN SPECIES

Symphoricarpos orbiculatus Moench

This is the only member of the subg. *Symphoricarpos* native to Mexico; other species of the subgenus occur throughout North America and Asia. This particular species is unique to the genus in having red fruits (Fig. 5).

Representative specimens: MEXICO. **Coahuila:** Muzquiz, along Sabine River, 11 Jul 1936, *Marsh 475* (TEX). **Nuevo Leon:** Monterey, Diente Canyon, 20 Jul 1930, *Mueller 103* (F, TEX).

Symphoricarpos longiflorus A. Gray

This species is distinguished by its salverform corollas 11–13 mm long, the largest of any corolla among the *Symphoricarpos* of Mexico. Other features that characterize this species are its sessile anthers and solitary basal nectary (all other Mexican taxa have five nectaries). Another feature which helps separate this species from other Mexican *Symphoricarpos* is a pubescent style; this is a plastic character, however, and not always reliable. The foliage and style of populations in Mexico range from completely glabrous (in Baja California) to pubescent (in northern Chihuahua) (Fig. 4).

Representative specimens. MEXICO. **Baja California Norte:** Sierra San Pedro Martir, east slope of Cerro de la Culpa, 31° 02'N, 115° 27'W, 27 Jul 1970, *Moran 17890* (TEX). **Chihuahua:** ca. 23 mi ENE of Villa Ahumada, 30° 40'N, 106° 07'W, 12 Sep 1973, *Henrickson 12866* (TEX).

Symphoricarpos microphyllus HBK.

Symphoricarpos microphyllus is the largest of the *Symphoricarpos* species, sometimes attaining a height of over 2 meters. It is readily distinguished from *S. palmeri* and *S. parishii* in its erect habit and by having all its leaves entire (Fig. 3). This is the most widespread *Symphoricarpos* species in both Mexico (Fig. 4) and Guatemala (Fig. 2). Throughout most of its range *S. microphyllus* is pubescent, but there is a rather large isolated population of glabrous individuals in the Sierra Madre Oriental along the border of southern Coahuila and the Midwestern Nuevo Leon border (Fig. 4).

Representative specimens. GUATEMALA. **Chimaltenango:** slopes of Volcan de Acatenango, above Las Calderas, 3 Jan 1939, *Standley 61853* (F); Volcan de Agua, 22 Jul 1937, *J.R. Johnston 910* (F). **El Progresso:** between Calera and summit of Volcan Siglo, 21 Jan 1942, *Steyermark 43042* (F). **Huehuetenango:** across river from San Juan Atitan, 8 Sep 1942, *Steyermark 52018* (F); Cerro Pixpix, above San Ildefonso Ixtahuacan, 15 Aug 1942, *Steyermark 50566* (F). **Quezaltenango:** Summit of the Sierra Madre Mts, 15 km N of Ostuncalco, 9 Dec 1963, *L.O. Williams 25536* (F); Sierra Madre Mts, 5 km N of Ostuncalco, 8 Dec 1963, *L.O. Williams 25472* (F); Cuesta de El Caracol, Sierra Madre Mountains, 5–8 km N of San Juan Ostuncalco, department of Quezaltenango, 11 Dec 1962, *Williams 22768* (F, TEX); mts SE of Palestina, along new road to San Juan Ostuncalco, 21 Jan 1941, *Standley 84354* (F); Volcan Santo Tomas, 22 Jan 1940, *Steyermark 34804* (F); Volcan Santo Tomas, 22 Jan 1940, *Steyermark 34804* (F); Volcan Santa Maria, between Santa Maria de Jesus, Los Mojadas, and summit of volcano, 12 Jan 1940, *Steyermark 34050* (F); slopes of Volcan Santa Maria, above Palojunoj, 6 Mar 1939, *Standley 67668* (F); mts above Olintepeque, 20 Feb 1939, *Standley 65956* (F); Volcan Santa Maria, 27 Jul 1934, *Skutch 870* (F). **Sacatepequez:** Slopes of Volcan de Agua, above Santa Maria de Jesus, 11 Feb 1939, *Standley 65108* (F). **San Marcos:** between Sibinal and summit of Volcan Tacana, 19 Feb 1940, *Steyermark 36080* (F). **Totonicapan:** ravines in Sierra Madre mts near Villa Las Cruces, 8 km SW of Totonicapan, 13 Dec 1963, *L.O. Williams 22969* (F); Nebuloso de Maria Tecun, 21 Nov 1965, *Molina 15886* (F).

MEXICO. **Chiapas:** Zinacantan, 6 Oct 1986, *Ton 9333* (TEX); San Juan Chamula, 2 Jun 1988, *Ruiz 883* (TEX); Valley floor of Zinacantan Center, 13 Apr 1966, *Laughlin 668* (F); slope with Oak and Pine, along road to Zontehuitz near Piedrachitas, 25 Aug 1964, *Breedlove 7127* (F); near Ik'al Nab lake, on the boundary between Chamula and Zinacantan, along road to Zinacantan center, 21 Sep 1965, *Breedlove 12394* (F); along small stream 7 km NE of Huistan, along road to Oxchuc and Ocosingo, 21 Sep 1972, *Breedlove 27750* (F). **Coahuila:** Sierra El Coahuilon, Arteaga, 17 Jun 1991, *Hinton 20992* (TEX); Sierra Pilote de Fierro, 25° 10'N, 101° 25'W, 24 Oct 1991, *Carranza 1221* (TEX); Las Vigas canyon, Sierra de Arteaga, 25° 20'N, 100° 39'W, 5 Jun 1987, *Villarreal 3739* (TEX); Sierra la Marta E of Cerro Moro, 22 Jul 1985, *Ginzburg 141* (TEX); Muzquiz, Sabinas river, 11 Jul 1936, *Marsh 475* (BRIT-SMU). **Distrito Federal:** volcanic soil, SE side of D.F., 12 Jul 1947, *Barkley 2215* (TEX); Desierto de los Leones, 5 Nov 1942, *Steyermark 52250* (F). **Durango:** canyon head, 51 mi SW of Durango, 13 Aug 1957, *Waterfall 13727* (BRIT-SMU, F, TEX). **Guanajuato:** San Miguel de las Casitas, 8 Sep 1990, *Ventura 8692* (F). **Hildago:** on Hwy 104 NE of Pachuca, 49.7 mi E of Ajacuba, 10 Jul 1985, *Cowan 5493* (TEX); San Vicente, 16 Aug 1937, *Fisher 37191* (F); upper cliffs

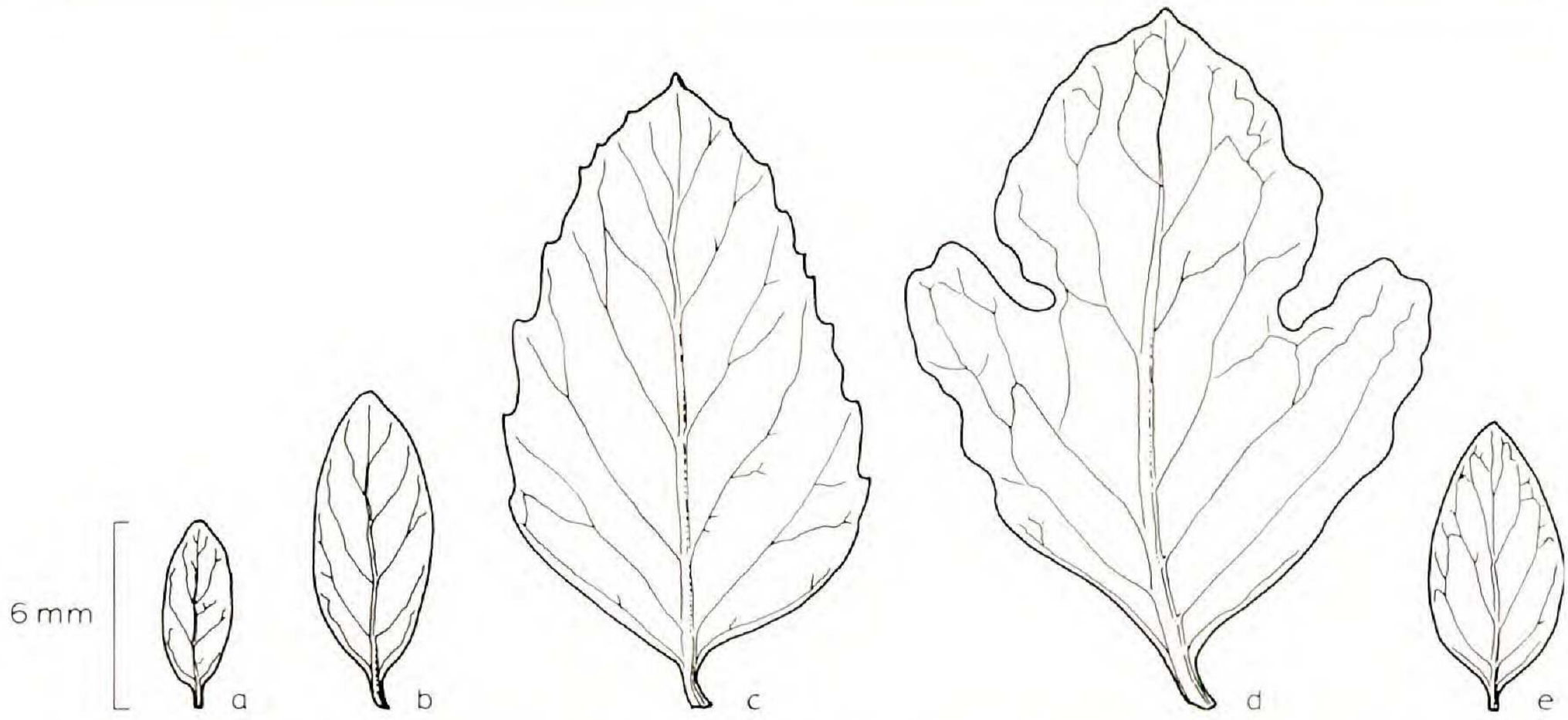

FIG. 3. Leaf shape of selected *Symphoricarpos* species. A. *Symphoricarpos guatemalensis*. B. *S. microphyllus*. C. *S. palmeri*. d. *S. parishii*, non-flowering branch. E. *S. parishii*, flowering branch.

near Metepec Station, 27 Jun 1904, *Pringle 13010* (F); Sierra de Pachuca, 20 Jul 1901, *Pringle 9480* (F). **Jalisco:** Nevado de Colima, brecha entre El Izote y la Micronda las Viboras, 5 Feb 1992, *Chazaro 6868* (TEX); NE slopes of Nevado de Colima, below Canoa de Leoncito, 10 Sep 1952, *McVaugh 12875* (BRIT-SMU). **Mexico:** 11 mi E of Amecameca, 31 Jul 1975, *LeDoux 2037* (TEX); between Toluca and Mexico, 24 Jul 1962, *Molseed 39* (TEX); pine forest of Las Crucea, 12 Jul 1932, *Hinton 1013* (F); 2 km SE of Totoloapan, 18 km E of Tezcoco, 10 Jul 1979, *Koch 7949* (F); valley in mountains, 16 mi E of Toluca, 18 Aug 1957, *Waterfall 14067* (F). **Michoacan:** on road to Uruapan, 4 mi S of Cheran, 3 Nov 1958, *Jones 23326* (TEX). hills of Patzcuaro, 11 Oct 1892, *Pringle 4261* (F); Cerro Huashan, 2 km S of Nahuatzen, 28 Jun 1990, *Garcia 2724* (F); Zitacuaro, 19 Aug 1938, *Hinton 13120* (F); 1 km W of Rancho Seco on Hwy 37, 2 km W of Morelos, 13 Sep 1986, *Suagel 167* (F); 6 km SE of Villa Madero, 30 Sep 1982, *Nunez 4732* (F). **Morelos:** Tepoztlon, 15 Jul 1938, *Kenoyer A340* (F). **Nuevo Leon:** 6 km SE of La Trinidad, summit of one of the picachos of Sierra Cebolla, 25° 11'N, 100° 07'W, 5 Aug 1988, *Patterson 6174* (TEX); Sierra La Marta, Galeana, 6 Sep 1981, *Hinton 18343* (TEX); Cerro, El Potosi, 21 Jun 1969, *Hinton 17115* (TEX); 1.5 mi SW of Pabillo, 21 Jul 1958, *Correll 19953* (TEX); Municipio Galeana, open pine forest near Cerro Potosi, 23 Jul 1938, *Schneider 953* (F); peak of Cerro Potosi, Municipio de Galeana, 21 Jul 1935, *Mueller 2256* (F); Sierra Potosi, by the N hogback, 20 mi NE of Galeana, 26 Jul 1934, *Mueller 1243* (TEX); Lerios Mts., Coahuila, 45 mi E of Saltillo, 10–13 Jul 1880, *Palmer 390* (F). **Oaxaca:** Cerro Verde, Jul 1908, *Purpus 3518* (F). **Puebla:** El Cimarron, 28 Jul 1971, *Ventura 3954* (TEX); el Chamizal, 20 Jul 1970, Ventura 1722 (F); in moist sandy loam, Pine and Juniper woodland, 10 mi W of San Salvador de Seco, 2 Aug 1947, *Barkley 2469* (F). **Queretaro:** 0.5 km of Cuatro Palos, along road to La Canada, 20 Sep 1989, *Carranza 2110* (F); Campo Alegre, 3 km S of San Joaquin, 24 May 1986, *Fernandez 3298* (TEX). **San Luis Potosi:** 7 km SW of Pozuelos and 22 km SW of San Luis Potosi, on Hwy to Guadalajara, 22° 03'N, 101° 10'W, 21 Aug 1973, *Johnston 12271.* (TEX).

Symphoricarpos palmeri G. N. Jones

Symphoricarpos palmeri is a relatively restricted endemic, occurring in the Trans-Pecos region of Texas and the Sierra del Carmens of northern Coahuila,

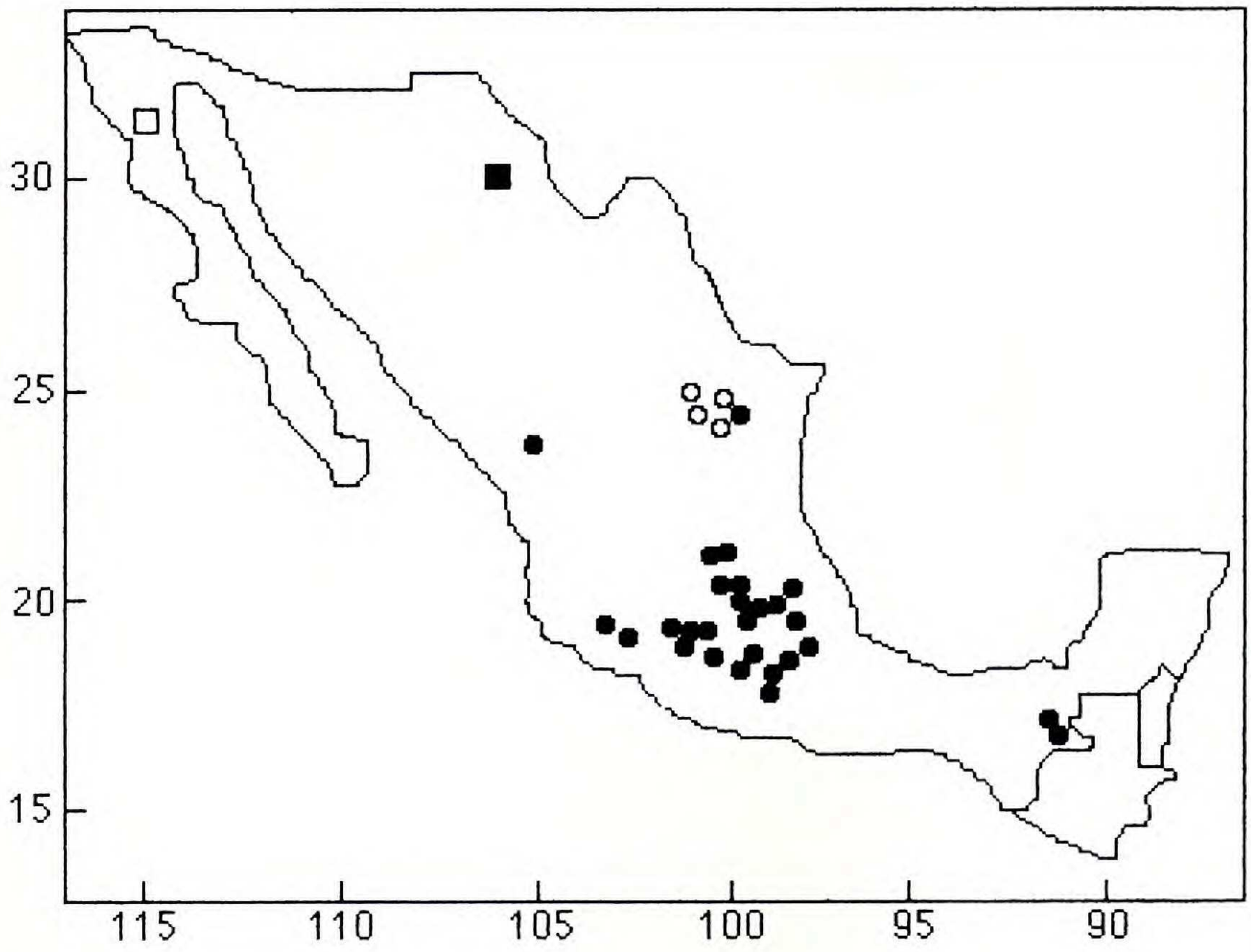

FIG. 4. Distribution of *S. longiflorus* (squares), and *S. microphyllus* (circles) in Mexico. Open characters represent glabrous populations, closed characters represent pubescent populations.

Mexico. It is recognized by its trailing habit and crenate-mucronate leaves of both flowering and non-flowering branches (Fig. 3). The species has mostly pubescent stems and leaves, but individuals with glabrous stems occur throughout its range (Fig. 5).

Representative specimens: MEXICO. **Coahuila:** 3.5 km N of Cerros El Centinela Creek and 4.8 km S of Canyon El Jardin, 29° 06'N, 102° 35'W, 19 May 1992, *Mayfield 1449* (TEX); Sierra Santa Fe del Pino, WNW of Hacebuches, 28° 13'N, 103° 02'W, 26 May 1973, *Johnston 11236* (F, TEX); 4 mi W and 10 mi S of Ocampo, 16 Jun 1956, *Graber 163* (TEX); N igneous slope of Picacho del Centinela, 24 Aug 1953, *Warnock 11603* (TEX).

Symphoricarpos parishii Rydb.

Symphoricarpos parishii is distinguished from the other Mexican taxa by its trailing habit, entire leaves of the flowering branches, and lobed leaves of the older non-flowering branches (Fig. 3). Specimens studied from Mexico have glabrous stems, although pubescent individuals are found scattered throughout its range in the United States. This species has been regarded as a variety of both *S. oreophilus* A. Gray by Cronquist et al. (1984) and *S. rotundifolius* A. Gray by Dempster (1992), but this problem is beyond the scope of the present paper (Fig. 5).

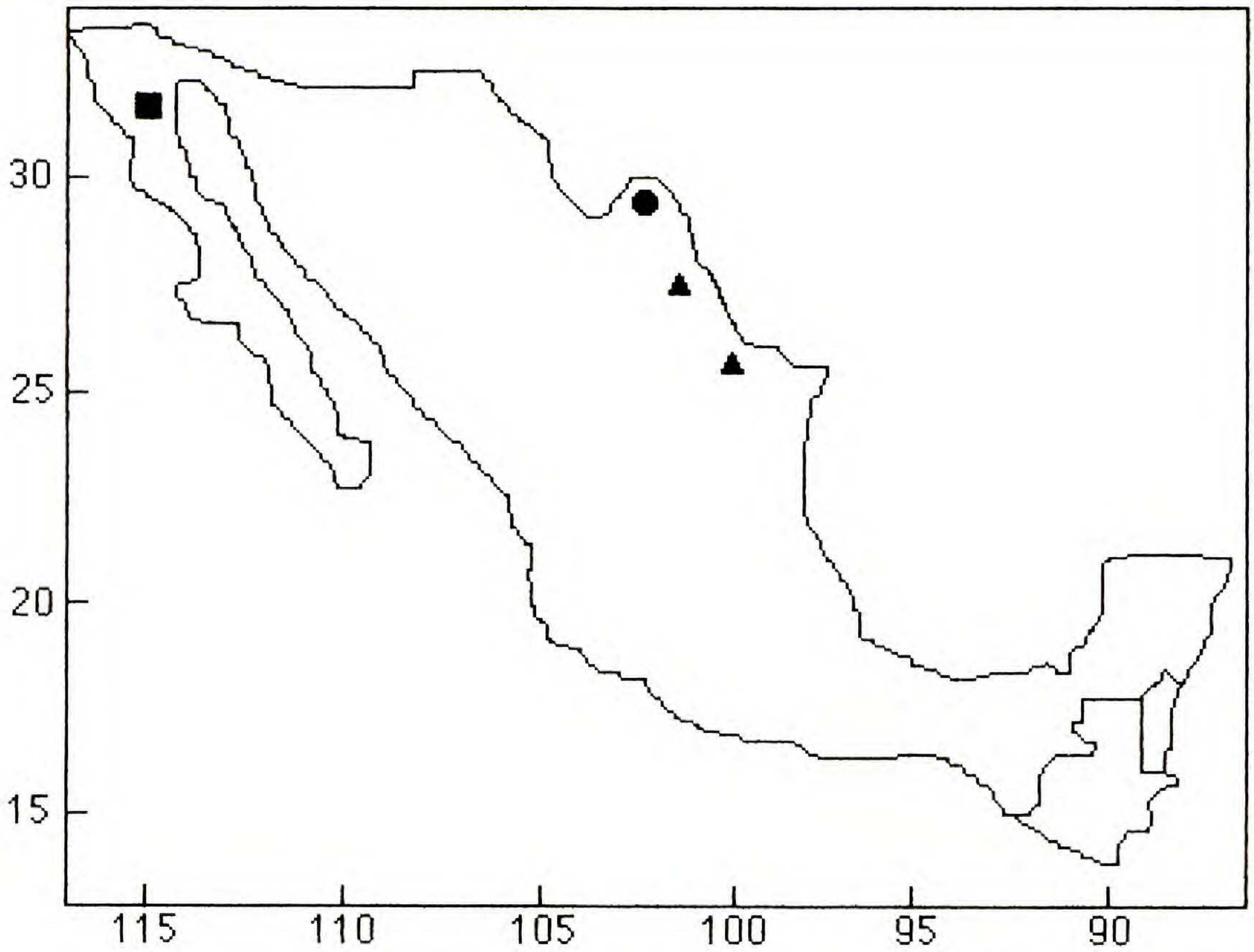

FIG. 5. Distribution of *S. orbiculatus* (triangles), *S. palmeri* (circle), *S. parishii* (square) in Mexico.

Representative specimens. MEXICO. **Baja California Norte:** Parque Nacional Sierra San Pedro Martir, Vallecitos, 31° 02'N, 115° 27.5'W, 1 Sep 1985, *Thorne 61437* (TEX); Sierra de Juarez, Parque Nacional Constitucion de 1857, Laguna Hanson & adjacent rocky flats and slopes, 26 May 1987, *Thorne 62362* (F); upper east end of Vallecitos meadow, 31° 00'N, 115° 27'W, 3 Jul 1973, *Moran 21082* (TEX).

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